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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/606,080

06/25/2003

Walid Khairy Mohamed Ahmed

17974

4268

26794

7590

04/02/2007

TYCO TECHNOLOGY RESOURCES

4550 NEW LINDEN HILL ROAD, SUITE 140

WILMINGTON, DE 19808-2952

EXAMINER

AHN, SAM K

ART UNIT

PAPER NUMBER

2611

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

04/02/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

# Office Action Summary

Application No.

10/606,080

Applicant(s)

AHMED, WALID KHAIRY  
MOHAMED

Examiner

Sam K. Ahn

Art Unit

2611

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 25 June 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-48 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 21-27 and 42-48 is/are allowed.
- 6) ☒ Claim(s) 1-13, 16-19 and 28-33 is/are rejected.
- 7) ☒ Claim(s) 14, 15, 20 and 34-41 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 January 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 010807, 071706, 020906, 061004.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Drawings***

1. The elements in Figs. 1(a) – 1(c) need to have descriptive label, in conformance with 37 CFR 1.84(n) and 1.84(o). For example, a descriptive label of “baseband processor” should be inserted into 115 in Fig. 1(a) to properly describe the element.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 9 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 9 recites the limitation "one or more of said segments" in line 1. There is insufficient antecedent basis for this limitation in the claim. On the other hand, claim 6 recites the limitation. It appears that claim 9 should depend on claim 6, rather than 5 based on the recited limitations. Is this the intention of the applicant?

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-5,11,13,16,17 and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Black et al. US 5,757,858 (Black).

Regarding claim 1, Black teaches a method for electromagnetic processing of an input wave comprising the steps of: receiving a modified signal (output of 320 in Fig.10, combined output  $P(n)$ ) derived from two or more signals (I and Q channel data) that represent said input wave when combined (col. 11, line 33 - col. 12, line 47); and regulating said modified signal (the output of the  $P_n$  is regulated by the  $C_{I/Q}$  as shown in table III) using a digital signal containing at least one characteristic of said two or more signals ( $C_{I/Q}$  is in digital signal of 0 or 1).

Regarding claim 2, Black further teaches two signals are in quadrature with each other (I and Q channel data, which are in-phase and quadrature are in quadrature).

Regarding claim 3, Black further teaches wherein said characteristic used to regulate said modified signal is magnitude (magnitude determined through the absolute values, note col. 12, lines 1-3).

Regarding claim 4, Black further teaches generating an output signal from said regulation as claimed (see Table III in col. 12).

Regarding claim 5, Black further teaches the step of regulating said modified is performed using a plurality of segment (see Fig. 10, wherein the divider, arctan ROM or  $I+/-$   $Q+/-$  in Fig. 10 are segments).

Regarding claim 11, Black further teaches said modified signal is derived from a sign characteristic of one of said two signals as claimed (see Table III in col. 12 regarding  $I+/-$  or  $Q+/-$ ).

Regarding claim 13, Black further teaches generating said modified signal as claimed (see Table III in col. 12).

Regarding claim 16, Black further teaches receiving a modified signal (output of 320 in Fig.10, combined output  $P(n)$ ) derived from two or more signals ( $I$  and  $Q$  channel data) that represent said input wave when combined (col. 11, line 33 - col. 12, line 47, wherein one skilled in the art at the time the invention was made would recognize that a signal has to be generated in order for the signal to be received).

Regarding claim 17, Black further teaches receiving a modified signal (output of 320 in Fig.10, combined output  $P(n)$ ) derived from two or more signals ( $I$  and  $Q$  channel data) that represent said input wave when combined (col. 11, line 33 -

col. 12, line 47, wherein one skilled in the art at the time the invention was made would recognize that the signal being modified, as previously explained is interpreted as being processed).

Regarding claim 19, Black further teaches an RF modulation for the transmitter (note col.5, lines 40-41).

4. Claims 1 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Meyer (US Pat. Number 5,861,773).

Regarding claim 1, Meyer discloses a function finding the maximum of method for electromagnetic processing of an input wave comprising the steps of: receiving a modified signal (the maximum of (I, Q) ) derived from two or more signals (I-Q data) that represent said input wave when combined (see Fig. 4), regulating said modified signal (the output of the max. function is regulated to be I or Q) by comparing one of said at least two signals that represent said input wave when combined with at least another of said two signals (comparing I and Q).

Regarding claim 10, Meyer discloses said received modified signal contains only one of said two or more signals used to derive said modified signal (the max (I, Q) = I if I > Q and the max (I, Q) = Q if I < Q).

5. Claims 1, 3-9, 12, 18, 19, 28 and 30-33 are rejected under 35 U.S.C. 102(b) as being anticipated by Holden et al. 6,411,655 (Holden).

Regarding claim 28, Holden teaches an apparatus for electromagnetic processing of an input wave comprising: an amplifier having at least two amplifying segments for receiving a modified signal (output of 11 in Fig. 1 received by plurality of power amplifiers, wherein amplifying segments are interpreted as power amplifiers) derived from two or more signals (derived from  $b_1$  –  $b(n)$ ) that represent said input wave when combined; and a control circuit for regulating said modified signal across one amplifying segment using a digital signal containing a characteristic of one of said two or more signals (10 in Fig. 1 regulating by digital signal  $b_1$ ), and for regulation said modified signal across another of said amplifying segments using a digital signal containing at least one characteristic of said two or more signals (and regulating by digital signal  $b_2$ –  $b(n)$  for the other amplifier PA2-PA(n)). Figure 1 of Holden clearly discloses a method/device of electromagnetic processing of an input wave, i.e. RF modulation (Note the load, i.e. the antenna.) having the steps/structure of receiving and regulating a modified signal. The modified signal in Holden can either be with the signal just after element 11 or just after element 13. Such a signal is "derived" from two or more signals  $b_1$  and  $b_2$ –  $b(n)$  that represent the input wave when combined. This is especially true when the modified signal is taken to be the signal that is just after element 13. The amplifiers PA1 to PA(n) "alternatively regulate" the modified signal using a digital signal  $b_1$ – $b(n)$  that

contains at least one characteristic of the two or more signals. It is noted that applicant has not set forth a specific definition for the term "alternatively" in the Application/Control Number: 10/610,396 Art Unit: 2817 Page3 original disclosure. Therefore, in accordance with MPEP 2111.01 the examiner has given this term its "plain meaning" (Also note MPEP 904.01 reproduced below.). Note that depending upon which of the lines where b 1-b(n) are "on" this activates a particular amplifier and accordingly the amplifiers of Holden are "alternatively" turned on or off and thus the amplifiers noted above of Holden are seen as providing for the "alternatively regulate" language of the claims. By turning on and off the above noted amplifiers of Holden the amplitude is regulated, i.e. changed to alternative regulation levels. An output signal from the regulation of the modified signal is clearly generated (Note the "Output to Load" shown in the Figure(s).) The plurality of amplifiers meets the claim language of "a plurality of segments". Again applicant has not set forth a specific definition of the term and thus the examiner has given this term the broadest reasonable interpretation consistent with the specification. See MPEP 904.01: 904.01 Analysis of Claims The breadth of the claims in the application should always be carefully noted; that is, the examiner should be fully aware of what the claims do not call for, as well as what they do require. During patent examination, the claims are given the broadest reasonable interpretation consistent with the specification. See *In re Morris*, 127 F.3d 1048, 44 USPQ2d 1023 (Fed. Cir. 1997). See MPEP § 2111 -§ 2116.01 for case law pertinent to claim analysis. As noted above the signal on



the lines that carry b1-b(n) control the amplifiers or "segments". Each of these segments have its own separate, independent control line and thus one or more of the segments is independently controlled as a power amplifier by a portion of the two or more signals that represent the input wave to contribute power to the output signal. These segments or power amplifiers each individually adds to the final output when turned on. This is clear from column 6 of Holden. It is common engineering knowledge that the current will accordingly change as the number of activated segments change. Thus, each of the segments of Holden acts as a current source supplying current to the final output wave. Note that the load does not change in accordance to what segments are select but the current supplied there to will change as noted above. Also note that filter 26 of Holden filters one or more of the two or more signals that represent the input wave when combined. Note that the combining element 13 is composed of power transformers among other things (Note the paragraph bridging columns 6 and 7.). Note the carrier wave comes from element 11 and accordingly is modulated further down the line by b1-b(n) as noted above.

Regarding claim 30, Holden further teaches wherein said characteristic used to regulate said modified signal is magnitude (note col.5, lines 41-45).

Regarding claim 1, the claim is rejected as applied to claim 28 with similar scope.

Regarding claim 3, the claim is rejected as applied to claim 28 with similar scope and as explained above.

Regarding claim 4, the claim is rejected as applied to claim 28 with similar scope and as explained above.

Regarding claim 5, the claim is rejected as applied to claim 28 with similar scope and as explained above.

Regarding claim 6, the claim is rejected as applied to claim 28 with similar scope and as explained above.

Regarding claim 7, the claim is rejected as applied to claim 28 with similar scope and as explained above.

Regarding claim 8, the claim is rejected as applied to claim 28 with similar scope and as explained above.

Regarding claim 9, the claim is rejected as applied to claim 28 with similar scope and as explained above.

Regarding claim 12, the claim is rejected as applied to claim 28 with similar scope and as explained above.

Regarding claim 18, the claim is rejected as applied to claim 28 with similar scope and as explained above.

Regarding claim 19, the claim is rejected as applied to claim 28 with similar scope and as explained above.

Regarding claim 30, the claim is rejected as applied to claim 28 with similar scope and as explained above.

Regarding claim 31, the claim is rejected as applied to claim 28 with similar scope and as explained above.

Regarding claim 32, the claim is rejected as applied to claim 28 with similar scope and as explained above.

Regarding claim 33, the claim is rejected as applied to claim 28 with similar scope and as explained above.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 2 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Holden et al. 6,411,655 (Holden).

Regarding claim 29, Holden teaches all subject matter claimed, as applied to claim 28. And although Holden teaches wherein said two or more signals are polar signals, it is well known to one skilled in the art that polar devices can be implemented in quadrature and vice versa as these are well-known art recognized ways to transmit a signal. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to implement the device of Holden in quadrature as these are well-known art recognized equivalent to polar signals.

Regarding claim 2, the claim is rejected as applied to claim 29 with similar scope and as explained above.

***Allowable Subject Matter***

7. Claims 21-27 and 42-48 are allowed.
8. Claims 14,15,20 and 34-41 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

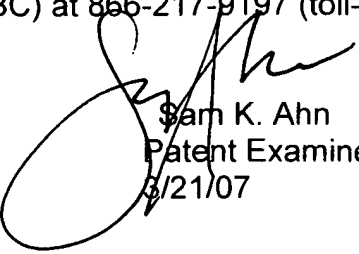
9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Vella-Coleiro et al. US 2003/0227981 A1 teaches a digital predistortion system comprising lookup table processing I and Q signals.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sam Ahn whose telephone number is (571) 272-3044. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad Ghayour can be reached on (571) 272-3021. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Sam K. Ahn  
Patent Examiner  
3/21/07